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LEVEL OF THE FIRST DAY UNDERPRICING OF VENTURE CAPITAL BACKED IPO FOR THE CEE REGION IN 2000-2012

ANALIZA NIEDOSZACOWANIA TRANSAKCJI IPO SPÓŁEK ZASILANYCH FUNDUSZAMI *VENTURE CAPITAL* W EUROPIE ŚRODKOWEJ I WSCHODNIEJ W LATACH 2000-2012

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Summary: Financial systems in post-communist countries have been developing for almost three decades since market transformation. In 2004 and later in 2007, ten Central and Eastern European states became members of European Union, and in the majority of them capital markets were created. There have been numerous studies which have examined the development of capital markets, however investigations concerning the development of stock exchanges are not so frequent. The aim of the paper is to analyze the underpricing of VC backed Initial Public Offerings carried out on the exchanges in Warsaw, Prague, Vienna, Bratislava and Lubljana in 2000-2012.

Keywords: VC, backed IPO.

Streszczenie: Systemy finansowe w krajach postkomunistycznych rozwijały się przez prawie trzy dekady – od czasu transformacji rynkowej. W roku 2004, a później w roku 2007 kraje Europy Środkowej i Wschodniej stały się członkami Unii Europejskiej i w tym czasie silnie rozwijał się rynek finansowy. Istnieją liczne badania, które analizują rozwój rynków kapitałowych, jednak analiza rozwoju inwestycji funduszy *venture capital* na rynkach kapitałowych nie jest dość częsta. Celem artykułu jest analiza pierwszych ofert publicznych spółek zasilanych funduszami *venture capital* na giełdach w Warszawie, Pradze, Wiedniu, Bratysławie i Lubljanie w latach 2000-2012.

Słowa kluczowe: IPO, *venture capital*.

1. Introduction

An Initial Public Offering is an important step in the life of a company. The main objectives of IPOs are: raising funds, getting a current market valuation of a company

and increasing its recognition among clients, stakeholders and potential investors. On certain markets, IPOs provide substantial amounts of new capital to the corporate sector. An Initial Public Offering occurs when a formerly privately owned company sells its newly issued stocks to the public for the first time. IPO underpricing happens when shares of a company that goes public are offered to investors at lower prices compared to the prices that they trade at later on the stock market. Thus, the low issue prices result in substantial first-day underpricing. Short-term underpricing is generally measured as the difference between the first-day closing price and the issue price. In percentage terms this is called initial return. Floating stock is a commonly used method for companies to gain new capital for new investments, to refinance their investments, to provide an exit for some investors (e.g. private equity funds) or to adjust their debt/equity ratios. The stock market provides an access to capital which can be used for investments, including acquisitions of other entities, building up working capital or paying the company's debts. For the current owners of the company (pre-IPO investors) the introduction of shares to trading on the organized market is a way of an investment exit. Loughran and Ritter (Loughran et al. 2004) showed that the first-day average returns in the US IPO market were: 7% in the 1980's, 15% in 1990-1998, 65% during the internet bubble years between 1999 and 2000 and 12% during 2001-2003. In the latest data, Ritter reports an almost 18% average initial return during 2012-2015[1]. In this paper we analyze the underpricing of the Initial Public Offering on the Central and Eastern European Stock Exchanges. These capital markets include the Warsaw Stock Exchange, the Prague Stock Exchange, the Budapest Stock Exchange, the Bratislava Stock Exchange, and the Ljubljana and Vienna Stock Exchanges. The goal of this study is to answer the question of whether offers in which the sellers experience positive initial returns and if these returns are higher or lower than in the case of the other IPOs in more developed capital markets. The period is limited to 2000-2012 as data on VC/PE backed IPOs is quite hard to obtain.

2. Basic concepts of IPO underpricing

By Initial Public Offering we understand an offer in which the shares of a company are sold to the general public for the first time. Through this process, a private company transforms into a public company. This definition encompasses either offers in which companies raise new capital or offers in which only existing shares are sold. Of course offers which mix both types are also considered as IPOs. There is no single measure of IPO underpricing in the existing literature. In most of the research, underpricing refers to the difference between the closing price of an equity on the first day of trading and the issue price, which is called initial return. Initial

[1] https://site.warrington.ufl.edu/ritter/files/2016/02/Initial-Public-Offerings-Underpricing-2016-01-08.pdf [access 15.05.2016].

return gives us a first glimpse of the profitability of an IPO investment but it is not an accurate measure of investment profitability in real market conditions. The first-day closing price represents what the investors are willing to pay for the firm's shares.

3. CEE capital markets overview

The CEE's capital markets are still immature. Almost all of them, except Austria's, were established in parallel with the liberalization of the economic environments in these countries after the collapse of the Berlin Wall. After the EU enlargement in May 2004 countries like the Czech Republic, Hungary, Poland and Slovenia moved even closer to Western Europe as their national regulatory environment, and some institutional structures quickly became very similar. After the liberalization of the markets and both international and government support, the capital markets were created to boost the economic growth. The CEE markets noted a great capital inflow, especially foreign direct investments as well as portfolio investors. This accelerated GDP growth and stock indexes (mostly to their record levels as was recorded in Poland in 2007). The CEE has been very successful in developing stock markets especially the Warsaw Stock Exchange which attracted over 800 companies in the period of 1991-2015. The only exception in the CEE region that is included in the research in this paper is Austria. The reason to introduce this market is that it already had a long stock market tradition in a liberal economic regime however the Austrian stock market before the early 1990s definitely did not play a significant role in providing sources of equity finance because bonds were the predominantly traded instrument in this market. Many indicators are quite similar to those of the CEE region (e.g. volatility of the stock index, ratio of market capitalization to GDP). Therefore this is a strong argument why we include Austria. Having that in the data could provide a comprehensive description of IPO performance in the CEE region, even though Austria is in some aspects a more advanced capital market.

In 2014 around 120 IPO transactions were concluded in the CEE region for a total value of EUR 10.5 billion. Over 50% of transactions (64 deals) were conducted in Poland; according to data compiled by Colliers International, their total value amounted to EUR 3.18 billion. Poland has thus become the leader in the IPO market in Central and Eastern Europe, gaining a 30% share in value terms. Colliers International noted that the average value of a single transaction in Poland amounted to EUR 50 million. In the first decade of functioning of the WSE (1991-2000), privatization fundamentally influenced the market capitalization. Later the role of privatization generally decreased but still state-owned companies were the ones that conducted the biggest IPOs. In the second decade after the establishment of the local capital markets, to be precise between 2003 and 2012, the market capitalization (in EUR) increased 2.5 times in the CEE market as a whole. The growth of the market was faster in comparison with the established capital markets such as the London Stock Exchange (LSE), where the market capitalization increased 1.5 times, or the

Deutsche Boerse, where the market capitalization increased 1.4 times. However, significant discrepancies can be observed in the development of individual markets (market capitalization increased in Warsaw 4.6 times, in Prague 2.3 times, in Hungary 1.19 times, in Slovakia 1.86 times, in Slovenia 0.87 times and in Austria 1.79). The CEE capital markets amounted to EUR 409 819 million in the peak year of 2007, which represented 16% of the market capitalization of the LSE and 28% of the market capitalization of the Deutsche Boerse. In order to describe the development of the CEE region we use a few main indicators to describe it. Market capitalization will be presented as the first main factor that may influence the IPO market. Second will be the turnover on the CEE capital markets followed by rate of return. By presenting those data we would like to show the development of the CEE capital markets and compare them with the main markets in the EU such as London and Frankfurt. This should show the differences between the emerging and developed markets.

This study focuses on the performance of IPOs in the emerging markets of Central and Eastern Europe between 2000 and 2012. Despite the numerous academic papers on IPOs, limited research has been conducted in the field of IPOs in the emerging markets of Central and Eastern Europe, especially for the post crisis period of 2009-2012. Studying the IPO in emerging CEE markets is interesting because these markets have special institutional characteristics. For example, a much smaller presence of institutional and foreign investors, a lower ratio of market capitalization to GDP, and a lower turnover velocity compared to more developed capital markets. Despite the numerous academic papers on IPOs, limited research has been conducted in the field of IPOs in the emerging markets of Central and Eastern Europe. Because the Warsaw Stock Exchange was performing very well and was often ranked second or third by IPO value in the European Union over the period of 2003-2012 (IPO Watch Europe, PwC, 2003-2013), most researchers have focused solely on the Polish market such as: Lizińska and Czapiewski [2014], Sieradzki [2013], Zaremba and Kaminski [2011]. The intention of this article is to study the IPO activities in the whole CEE region and fill the gap in this part of the academic literature. The CEE markets are institutionally different from the EU developed markets in terms of financial depth (banks and ratio of market capitalization to GDP), presence of institutional and foreign investors, and the net investment position.

Table 1 presents 408 IPOs data for the period 2000-2012 on the stock exchanges in Austria, Slovakia, the Czech Republic, Poland, Hungary and Slovenia. In the case of double listings, we use the IPO in the domestic market only. The privatizations of public companies are also included (twenty seven of such IPOs), but only if they were public offerings (i.e. privatized initial public offering–PIPO). There were 20 cases in Poland, 5 in Austria and one in Slovenia and Hungary. Delisted companies reduce the sample by 143. This identification reduces our sample to 255 IPOs.

The most important stock market in the CEE region is the WSE, which accounts for 77% of the total number of IPOs, 37% of the total market capitalization and 67% of the total IPO value.

Table 1. Original sample of CEE IPO data in the period 2000-2012

Exchange	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Poland	13	9	5	6	36	34	35	68	29	10	26	31	16	318
Czech Republic	0	0	0	0	1	0	2	2	1	0	1	1	0	8
Hungary	0	0	0	0	1	0	3	0	1	2	6	6	0	19
Slovakia	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Slovenia	0	0	0	0	0	0	2	1	1	0	1	2	0	7
Austria	8	8	3	9	1	7	6	6	2	0	2	2	1	55
Total	21	17	8	13	39	40	48	75	33	12	36	42	17	408

Source: CEE stock exchanges [access: 10.05.2016].

Empirical results

The hypotheses are tested with the following three statistical models:
1) average (unweighted) initial returns (IR);
2) average (unweighted) abnormal returns (AAR);
3) average value-weighted initial returns (WIR).
Initial return is calculated as follows:

$$IR_i = \frac{P_{i,t} - P_{i,0}}{P_{i,0}}, \tag{1}$$

where IR_i is the gross initial return for security i from the last day of the subscription period to the closing of the first day of trading, $P_{i,t}$ is the closing price of security i at the first day of trading, $P_{i,0}$ is the issue price of security i at the time of subscription.

For the average unweighted abnormal return we adjust Formula 1 as follows:

$$AAR_{i,t} = \frac{P_{i,t} - P_{i,1}}{P_{i,1}} - \frac{I_{i,t} - I_{i,1}}{I_{i,1}}, \tag{2}$$

where the second part of the equation is return on the index in the period d. The rest of the signs are the same as in Formula 1.

Initial Returns

A significant first-day underpricing of 12.3% for the CEE IPOs is reported for model 1 and 11.08% and 5.6% for models 2 and 3, respectively (Table 2). Thus, the same phenomenon as reported for developed markets, as well as for Hungary and Poland for the 1990s also existed on the CEE markets from 2000 to 2012. In addition, the presented results for Polish IPOs are similar to recent studies, which provide a lower level of first-day underpricing in comparison to the previous studies.

Initial abnormal return model note on average an 11.08% underpricing and for the region excluding Vienna this number goes up to 13.0%. The third model shows mixed results and we find that small IPOs (with an offer under 10 million EUR) exhibit stronger positive initial returns. This finding is consistent with the asymmetric information theory and provides a piece of evidence for the CEE markets similar to other researchers' findings. It is necessary to point out that value weighted initial returns for the region are generally positive and report 8.1% underpricing but taking this value apart, we find that for Vienna IPOs this third model represents –2.01% overpricing.

Table 2. Result for first day initial returns for CEE IPOs over 2000-2012 (in %)

Model	CEE	T-statistics
Initial Return	12.3	1.0906 (0.039)
Initial Abnormal Return	11.08	1.805 (0,037)
Value Weighted Initial Returns	5.6	–0.0279 (0.431)
Model	Emerging CEE (excluding Vienna)	T-statistics
Initial Return	14.2	2.678 (0.02)
Initial Abnormal Return	13.0	2.379 (0.01)
Value Weighted Initial Returns	8.1	1.511 (0.034)

Notes: *T*-test statistics indicate the level of significance when the average adjusted returns are greater/lower than zero. Significance at the 5% level for the one-tailed test.

Source: own elaboration.

Table 3. Individual results of underpricing for CEE region over 2000-2012

Stock exchange	Number of IPO	Initial Return (Model 1)	Initial Abnormal Return (Model 2)	Value Weighted Initial Returns (Model 3)
Budapest Stock Exchange	14	22.2	19.5	8.5
Ljubljana Stock Exchange	5	34.2	20.1	1.7
Prague Stock Exchange	6	1.2	0.6	0.0
Vienna Stock Exchange	47	5.5	4.1	–2.01
Warsaw Stock Exchange	183	14.5	13.9	5.3

Source: based on CEE stock exchanges data [access: 10.05.2016].

Table 3 provides individual results for the CEE capital markets. First of all it shows that the IPOs' average initial return, index-adjusted initial and weighted returns are positive for all of the individual CEE capital markets, with the exception of Vienna for model 3. Furthermore, the table shows that the average initial returns for the CEE IPOs are positive for all of the three models, ranging from 1.2% to 34.2%.

Table 3 presents individual data for each of the CEE stock exchanges including the number of IPOs and calculations of the different types of initial returns. The results range from 1.2% for the initial returns at the Prague Stock Exchange to 34.2% for the Ljubljana Stock Exchange. Underpricing under the third model is the lowest among all the analysed data. Again this finding is consistent with the asymmetric information theory and provides a piece of evidence for the CEE markets similar to the findings reported by other researchers. Small capital markets offer greater underpricing for the investors.

4. Conclusion

In this paper we investigated the influence of capital market development, and capital market indices returns on the number of IPOs in the CEE capital markets over the period of 2000 to 2012. All capital market data analysed in this paper have sufficient support in the financial academic studies. This article provides a unique insight into the initial underpricing of the IPOs in six capital markets of Central and Eastern Europe (the Budapest, Ljubljana, Prague, Bratislava, Vienna and Warsaw capital markets) from 2000 to 2012. It was confirmed that significant first-day positive adjusted returns exist in the CEE region that are in line with the asymmetric information theory.

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